Electronic and Information Technology Applications in Sports

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Abstract: Electronic and information technology is a fast-developing advanced, plays a huge role in athletics. Whether sports information management, raise the level of sports referees, promoting the sports development of e-commerce, or more accurately, to make technical analysis, scientific training, etc., requires the involvement of high tech information technology. Sports power in the world is not only strong in sports achievement, more information and other high-tech can be used for sports competition to improve Athletics levels, shows the country's overall strength. Sports need to constantly break through humanity itself, combining cutting-edge technology with the representative of the information technology, will bring sports leaps and prosperity.

Key Words: Information technology, Sports, Utilization

1. Introduction

Science and technology is the first productive force, with the development of society, science and technology of the dash, productivity, and to the world of human economic and social development has brought great push Move. By means of computer to the Internet for information transmission means, multidisciplinary emerged The high and new technology and scientific research and so on modern science and technology as our contemporary society Modern milestone. In modern society, we must bring modern social relations And ideas. The trend of the development of modernization, is the social development is unstoppable Historical trend. The new revolution of science and technology, will further accelerate the competitive sports The process of modernization, more great influence on the development of sports technology. Competitive Sports modernization has become the inexorable historical trend Modern science and technology In sports the penetration and influence is more and more big.

Modern sport is closely related to electronics and information technology, electronics and information technology to inject vitality into the development of the sport, increasing power, especially in modern characteristic of a large-capacity and faster to process digital information technology has been widely used in sports and sports rely on the support and development of contemporary elements. Competition sports is technological competition, and competition is first and foremost information technology competition. Improving the performance of athletic sports and athletes, but also to a large extent dependent on electronics and information technology.

2. Electronic and information technology

Electronics and information technology refers to the collection, transfer and disposal of information technology. Electronic information technology based on micro-electronics technology, including communication technology, automation technology, microelectronic, optoelectronic, optical technology, machine technology, such as computer technology and artificial intelligence. Among them, the most important and the most typical is the computer, communications and sensor technologies. Information technologies the most important computer technology, communications technology, sensor characteristic, that is, technology combined with information, and comprehensive information on network and intelligent information systems. This forms the core of the information technology—network information technology.

3. Electronic information technology in sports network of application

3.1 The application of network information technology

Application of network information technology in information technology, computer technology and communication technology, including not only traditional telephone communications, also include optical communications, data communications, satellite communications and other wireless communications and other modern communications, also includes radio, television and information dissemination. Now the new communication networks, telephony, video, and other multimedia information can be delivered via broadband IP network, will soon be implemented in recent years and its application. Application of network information is continuing to expand, extended to include financial electronic transactions, online teaching, online medical videos, high-definition video on demand services, video conferencing, video phone and other multimedia applications. In addition to the wired network access, Internet, information appliances and other devices using the mobile terminal number is gradually increasing. Using WAP technology, cell phones can browse Internet sites, you can send multimedia e-mail. High speed, high quality, accurate, timely, safe, and reliable delivery and exchange of information in all its forms. Therefore, it is necessary to develop fiber-optic communications, satellite communications, program-controlled Exchange, large capacity, good quality, such as intelligent Terminal coverage, fast, flexible, feature-richcommunications technology, forming extensive, well-structured, responsive, secure and reliable communications networks, provide a high level of intelligence services.

Network information technology in today's world is becoming more widely used for athletic fields, now major or world-class sports events, involving not only the race venue, participants, many of play-offs and timeliness requirements of press releases, the accuracy of the results of the competition and increasingly high real-time requirements. In 1964 electronic technology applied to the East for the first time the games began, using computer technology 1988 Seoul Olympic Games, Olympics 1992 BARROW uses satellite technology, the 1996 Atlanta Olympic games using a full suite of IBM computer information systems, processing and publishing sports information system using 80 AS-400 computer servers, thousands of computers, all computer systems are able to communicate with the network and database, Timely processing of contest information and real-time dissemination of results and tournament news. After a 21st century information technology is widely used for athletic fields, use of electronic technology in the 2000 Sydney Olympic Games and Internet e-commerce. Race schedule released, tickets sold, race results, such as publishing, real-time game information can be provided through the network. With the help of the Internet and online payment, the organizer can provide events, times, tickets on the Internet and provide millions of tickets booking service. 2002 football World Cup using the integrated voice and data network, and the first time in World Cup history Wireless LAN access for 2008 Beijing Olympic Games presents digital Olympics has become sport and culture, linking a new starting point for sports and
science. People can be issued at any time via the Internet game contest results as well as all previous information, providing race live video, the 2012 London Olympics and the 2014 Brazil World Cup through Internet access race information of over 8 billion passengers, network click on the peak frequency more than 2 million times/min information technology to ensure the games go smoothly.

The 1996 Atlanta Olympics, 1998 World Cup soccer tournament began using electronic identification technology, and since then in major sporting events in the world have already adopted the technology of computer network information management. 2006 World Cup Germany World Cup total 64 field game of over 3.5 million Zhang tickets in sold Shi are was embedded has has identification information of RFID chip, this a high-tech of electronic technology makes fans in through all 12 a hosted Stadium of entrance Shi, they of information including name, and address, and was born date, and nationality and ID or passport number are can quickly to in database in the was detection to, electronic identification technology improve has race of While significantly saving security personnel input security.

3.2 application of electronic sensor technology

Sensing technology of high precision, high efficiency and reliable collection of information. Electronic sensors for remote sensing, telemetry, as well as a variety of high performance, transducers and monitors, as well as all kinds of intelligent sensing technology.

Uses high-tech means can make sports referee objectivity and precision, and provide a solid foundation for sports analysis. To maintain sports fair and accurate, competitions require electronic scoring system. Use of electronic sensor technology, establishment of various electronic means of evaluation of competition events. From starting device and starting line Shang of electronic sensor, pool of pool wall installation electronic induction device, it main by signal sensor, microprocessor, scores displayed brand, touch Board and blind table five part constitute, its errors about in 0.1 seconds, guarantees has race of height fair are moments automatically will results to information center, can accurate judge athletes whether foul and precise of time data displayed out high fine of scores. Shooting, bysensors installed on the target, accurately to record the target and the number of Marathon and race walking and cycling and long distance competitions, athletes carry micro wireless transmitter, play wireless receiver, monitor competitor's location information. In the ball game, through an electronic recorder, can accurately record player hitting and speed. In late 2005, FIFA, adidas has been designed and developed by a chip football has been tested, that football is a micro-volume, highly intelligent, high induction, wireless networking, it will help to determine football position, especially when player obstructed the umpire's view.

Introduced in the 2008 Beijing Olympics tennis tournament Hawk-Eye technology, which is used for the first time in Olympic history, eagle eye. Eagle eye is an Instant-Repeat system commonly known. Eagle eye works by using high speed camera to capture from different angles at the same time the basic trajectory of flight of tennis, and then through a computer-generated image, finally, landing the tennis on the big screen and the running track. After receiving an application, the referee, by the Hawk-Eye replay, and decide whether the changed decision. According to the regulation in order to protect the game and the referee's authority, athlete per plate of only three opportunities to uses Hawk-Eye. Electronic telemetry heart rate system, telemetry ECG and telemetry EMG system of athletes in sports, heart rate, ECG, EMG were measured in order to diagnose athlete's physiological functions during science.

3.3 The application of computer technology

The application of computer technology to high speed, highly intelligent, multifunctional, many varieties of the handling and processing of information in all its forms, which include computers, intelligent computers, software, networking, and so on.

Computer technology in one of the most important technologies in the field of information technology, whether it's youth talent identification and training supervision, fitness testing, and sports information, sports management, and sports equipment research and development requires the involvement and support of computer technology. Without the help of computer technology, development of competitive sports will be very slow. Using computers with fast and efficient feedback this feature can greatly improve the effect of training. Because your computer has the ability to store information, training and a variety of performance indicator data stored for later comparison. So relying on computer help, coaches can be accomplished according to players in a class according to the functional evaluation of certain indicators, to determine an athlete's level of training. And use the computer to know your opponent's technical and tactical information, timely feedback to their coaches and athletes, to targeted training to improve athletic performance. American-Israel jideng-aiyer sports scientist in the United States to open a biomechanical analysis of computer companies, technical analysis to many athletes. He studied United States discus throw of the weierjinsi cookie technology, found wenerjinsi before the discus out, insufficient braking leg, lost a part of power should have reached the discus. Through computer simulation and calculation, if this error is corrected, whose performance can be increased by about 3M. Weierjinsi improves the technology as recommended by Ariel, scores actually improve 3M and set a new world record.

4. The role of electronic information technology in the field of sports, significance and application development

Modern electronic information technology has changed the traditional sports in the field of many of the results of the competition is not accurate, the training quality is difficult to control, space equipment not smart, and so on many problems, make a competitive sports contest more scientific, accurate, practical, such as physical training of athletes in competitive sports and fitness testing, psychological testing and analysis of the technical level of the sports has been widely used in all kinds of modern scientific instruments. Modern electronic information technology involved in the sport sports psychology, sports physiology, sports biochemistry and nutrition disciplines at the forefront of research results, through the analysis of sport technology and process, using the theory of sports biomechanics, adopting the most advanced camera, photography to shoot, after the data processing by computer, get accurate scientific data.

Proofs, without the use of modern science and technology, scientific training is impossible. At the same time, competition and training from the athletes’ clothing to the ground, the use of the equipment and the athletes selecting, training, nutrition, and management is not reflect the content of science and technology. Therefore, modern science and technology plays an important role in sports, a series of sports the emergence and development of new disciplines, is the important of sports science. Because of modern natural science and social science in the field of sports to constant penetration, transplantation and application of the new subject of many sports science developed rapidly. Sports science research results of practical application is usually the sign of sports science.
Now for sports practice sports science research results have been very rapid change cycle, suggests that the sports scientific research achievements of many and fast, multi-disciplinary comprehensive application, through the electronic information technology is widely used in the field of sports make closer combination of theory and practice in the field of sports, is the inevitable trend of modern sports scientific development. Therefore, promote the process of sports scientific sports training system and the reform of management system, each subject experts have undertake training task load and administrative tasks. The traditional experience type training system and management system has been replaced by a scientific training system and management system. The application of computer, electronics, laser, space, and other modern technology used widely, is an important symbol of modern competitive sports, electronic information technology, understanding and management of all kinds of information is an important tool, is also an important means of realizing the modern sports science quantitative. Electronic technology not only can provide reliable information to the coaches, and correction training plan for coaches to provide reliable basis, and analysis of technical and tactical training for athletes to complete quality assurance. Modern electronic information technology application in sport prompted on the field and performance, new records constantly emerging. These are all with the development of science and technology an integral. The scientization of competitive sports and the process of modern science and technology, must be high, difficult, fine, pointed the process of modern sports skills and tactics.

5. Conclusions

In sports athletic field in the, electronic information science and technology to mass of leap and change, this is see of, modern electronic information science and technology of development, to sports athletic field proposed has scientific of requirements, electronic information science and technology of widely using, is sports athletic development of must trend, with sports athletic of development, scores substantially of improve, competition increasingly fierce, used traditional of training party and means has cannot adapted today athletic sports development of needs. Only used for sport as a whole field of electronic information science and technology, and to improve athletic performance, promoting the development of sports.

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